

No. 665,804.

W. R. SAVAGE.  
WINDMILL.

Patented Jan. 8, 1901.

(No Model.)

(Application filed Feb. 21, 1900.)

2 Sheets—Sheet 1.

Fig. 2.

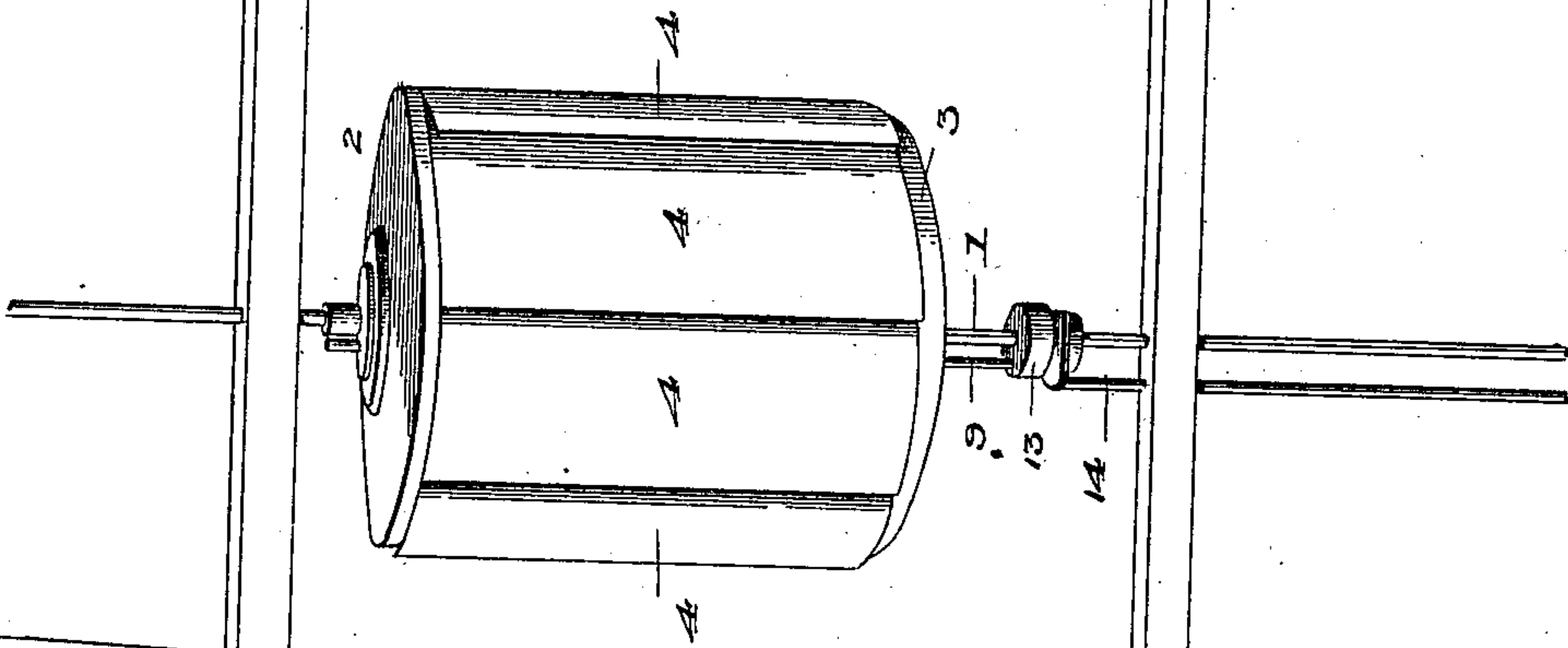
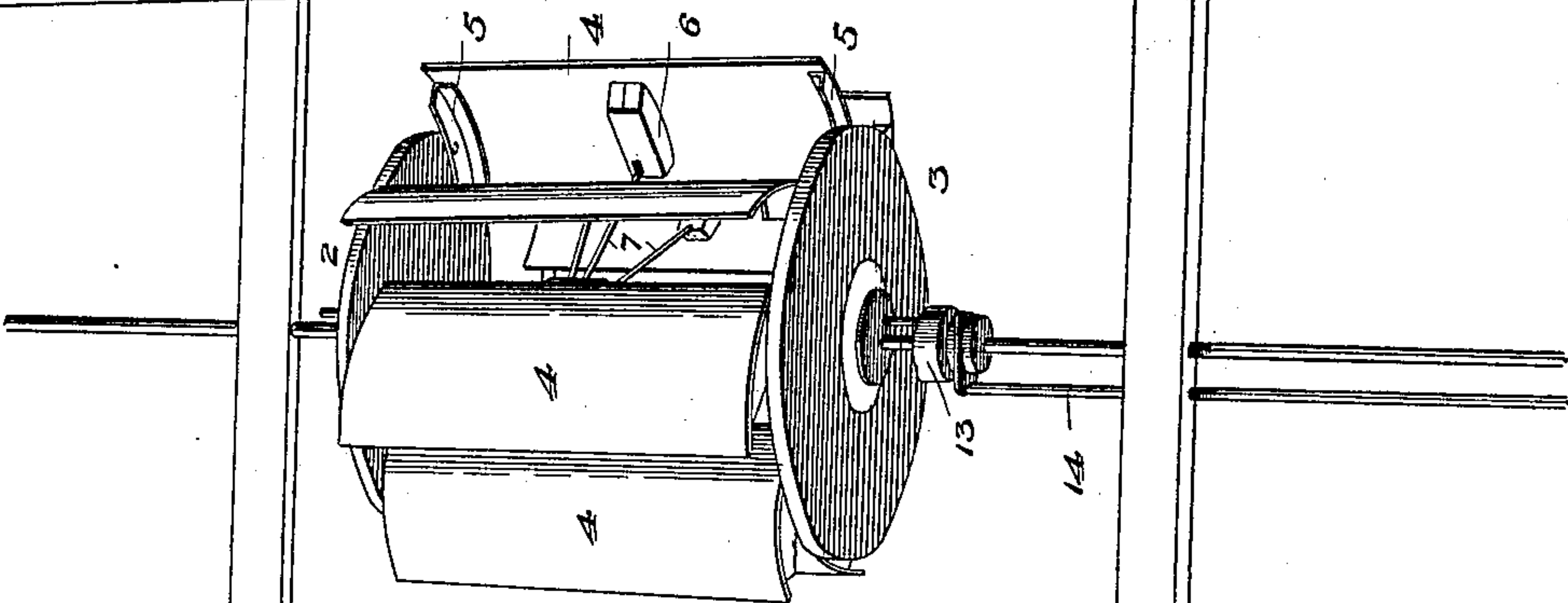


Fig. 1.



Witnesses

*Will Rufus Savage* Inventor  
*by A. B. Williams & Co* Attorneys

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Fig. 3.

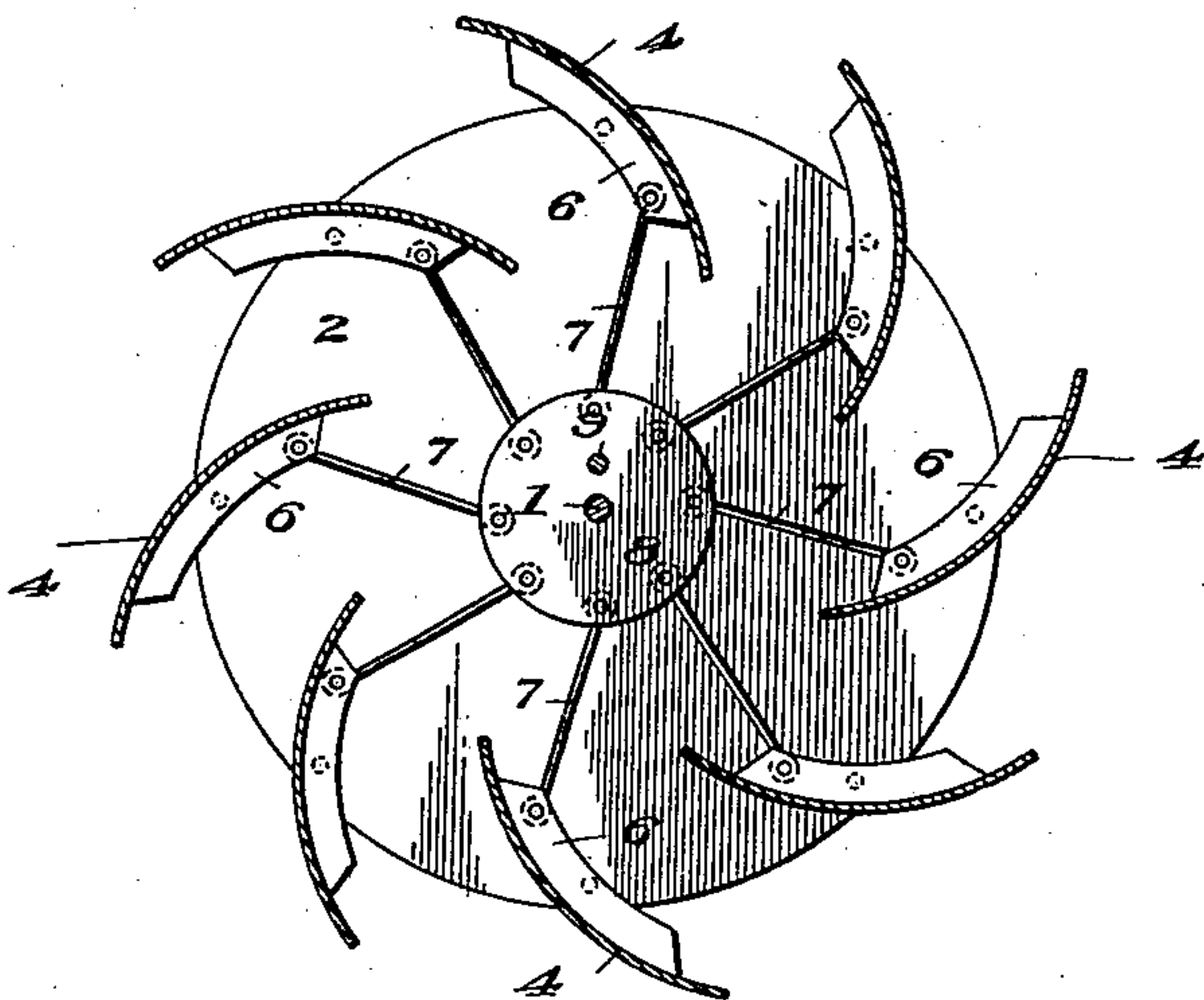
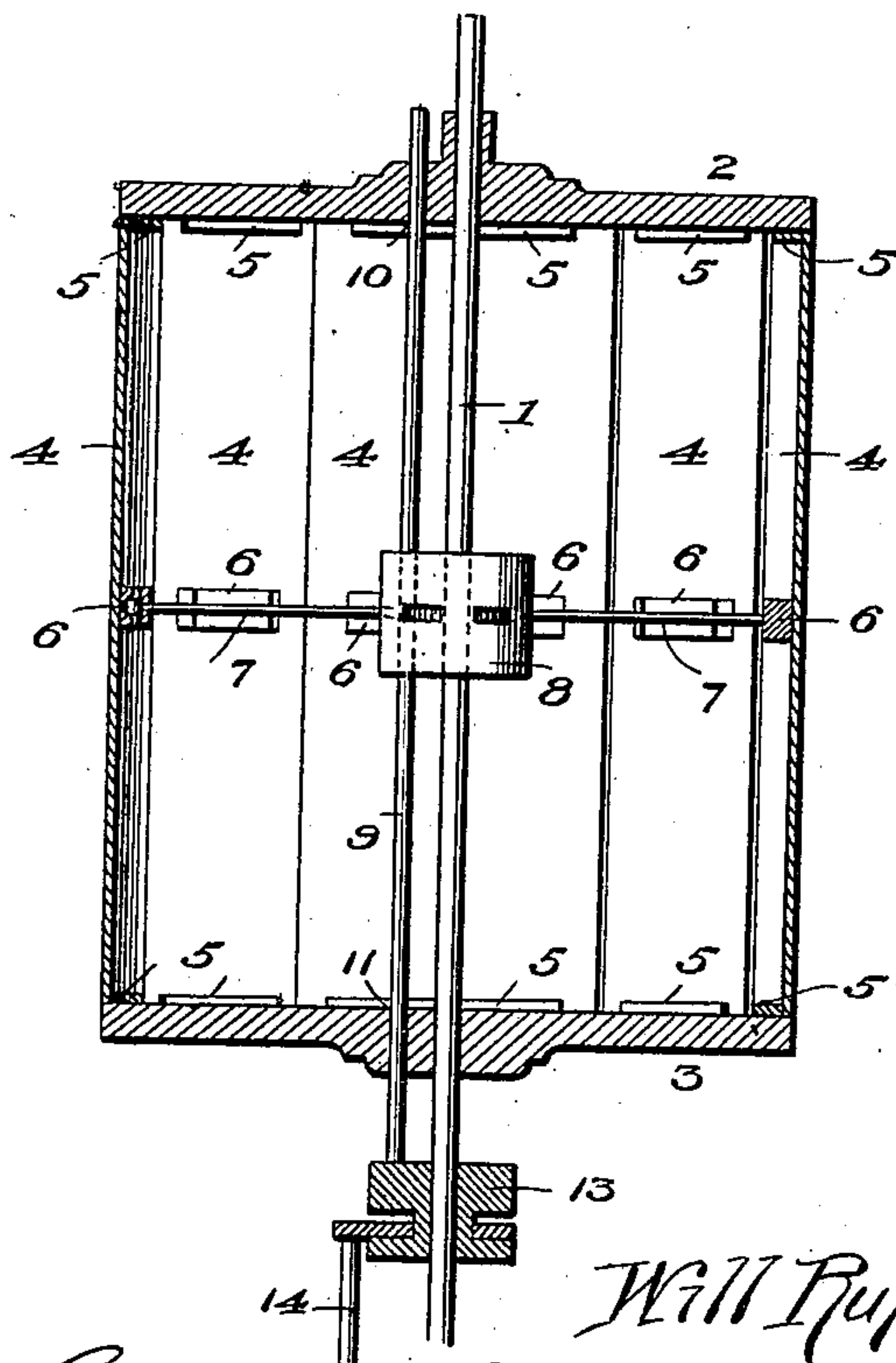


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILL RUFUS SAVAGE, OF MODALE, IOWA.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 665,804, dated January 8, 1901.

Application filed February 21, 1900. Serial No. 6,096. (No model.)

*To all whom it may concern:*

Be it known that I, WILL RUFUS SAVAGE, a citizen of the United States, residing at Modale, in the county of Harrison and State of Iowa, have invented certain new and useful Improvements in Windmills or Water-Wheels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to windmills and water-power wheels; and the object is to simplify the construction, increase the efficiency, and provide an inexpensive and effective device of this character.

To this end the invention consists in certain features of construction and combination of parts which will be hereinafter more fully described and claimed.

In the accompanying drawings the same reference characters indicate the same parts of the invention.

Figure 1 is a perspective view of my improved windmill and water-wheel in operation. Fig. 2 is a similar view showing the windmill closed. Fig. 3 is a vertical transverse section, and Fig. 4 is a longitudinal section.

1 denotes the main driving-shaft, on which are permanently fixed the parallel disk-heads 2 and 3, between which are pivoted or fulcrumed the curved fan-blades 4 4. These blades are provided on their inner faces with the stiffening-ribs 5 5 and with the central cleats or brackets 6 6, from which the pivoted rods 7 7 extend to the governor-hub 8, which encompasses and has a sliding engagement with the shaft 1.

9 denotes the governor-rod fixed to the hub 8, with its upper end extending through a guide-orifice 10 in the disk 2 and its lower end extending through a similar aligned guide-orifice 11 in the lower disk 3, the intermediate end of said rod carrying a circumferentially-grooved collar 13, which engages the forked or ring end of a hand-rod 14.

The operation is such that when the governor-hub is in the same plane with the brackets 6 6 the rods 7 7 are at or about right angles to the driving-shaft, and consequently the blades are opened outwardly to their full extent to catch the wind, as shown in full lines in Fig. 2, and when the governor-block

is pushed up or down the rods 7 assume a diagonal position with reference to the axis of said shaft, and consequently close the blades and throw the mill out of gear. The rods 7 may assume just the opposite positions in opening and closing the blade, or the rods 7 may be operated to open and close the blades by imparting a circular movement to the governing connections.

The power of the mill in a given velocity of the wind or water may be regulated by the degree to which the blades are opened and the corresponding surface which is thereby exposed to the force of the wind or water.

The parts 5, 6, and 9 may, if desired, be dispensed with, and the rods 7 may be attached to the outside or at the ends and then to the grooved collar 13 outside the wheel.

The blades 4 may be either curved, straight, or any other suitable shape.

By dispensing with the parallel disk-heads and strengthening the connecting-arms or adding additional similar ones having sliding engagements with the gearing apparatus the circumference and diameter of the wheel diminish as the wheel is closed or thrown out of gear.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent of the United States, is—

A windmill or water-wheel, comprising a main shaft, a pair of parallel disks fixed thereon, blades mounted between and pivoted to the disks, a hub slidably mounted on the main shaft, a governor-shaft carrying said hub and slidably mounted in the disks and guided thereby to move in a path parallel with the main shaft, pivoted rods or links connecting the blades and hub, and means for operating the governor-rod, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILL RUFUS SAVAGE.

Witnesses:

WILLIAM W. FRANK,  
JOHN E. HICKS.